



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,709	06/12/2001	Wade Summers	SUM.101	3775
24062	7590	04/13/2004		
CAMORIANO & ASSOCIATES 8225 SHELBYVILLE ROAD LOUISVILLE, KY 40222			EXAMINER FISCHER, JUSTIN R	
			ART UNIT	PAPER NUMBER

1733

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/879,709

Applicant(s)

SUMMERS, WADE

Examiner

Justin R Fischer

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 15 and 18-21 is/are allowed.
- 6) ☒ Claim(s) 1-14, 16, 17 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20031027</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 24, 2003 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-14, 16, 17, and 22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As currently drafted, the claims require the following limitation: at least some of the balls are independent of said tire and rim and are free to shift circumferentially relative to said tire and rim. Applicant asserts (Page 12 of Remarks) that a paragraph defining this characteristic has been added to provide language as a basis for the claim amendment and it does not constitute new matter since it simply describes what is shown in the drawings (applicant

points to Figures 3, 16, and 17). However, there is nothing depicted in any of the figures that provides support to describe the relationship between the plurality of inflated balls and the tire/rim assembly as noted above- it is unclear from the figures if the balls are adhesively attached to the tire/rim assembly or if they are independently arranged within the tire cavity. In fact, none of the figures even depict a deflated ball, let alone the circumferential movement or shifting of the plurality of balls in the event of a deflated ball. Furthermore, the figures do not contain any arrows to indicate the movement of the balls upon the deflation of at least one ball- the figures simply depict the reduction of volume and increase of pressure in a single ball upon coming into contact with the ground area. As such, the original disclosure fails to provide support to describe the plurality of inflated balls as being independently free to shift circumferentially relative to the tire/rim assembly. In this same regard, the language "at least some of" suggests embodiments in which some balls are independent of the tire/rim assembly and others are not- this is not supported by the original disclosure.

As to claim 22, the original disclosure fails to provide support to exclude the inclusion of a component that is more rigid than the balls- in fact, the original disclosure, as best depicted in Figure 7, does disclose an assembly having a rim lock disposed within the tire assembly. In this instance, there is no description regarding the rigidity of the rim lock as compared to the same of the inflated balls (one would expect the rim lock to actually be more rigid, which contradicts claim limitation). It is additionally noted that applicant did not mention in the remarks where support is found for such language (claim 22 is not mentioned) and as such, the noted language constitutes new matter.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 6, 7, 9, 12, 17, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Krum (US 952,675, of record), Peck (US 963,320, of record), or Grubb (US 1,243,513, of record) and further in view of Mitchell (US 4,305,622, of record) and Ross (US 4,281,700, of record). Krum, Peck, and Grubb are each directed to a tire assembly comprising a tire and a rim, wherein a plurality of inflated balls are disposed within the hollow space defined by said tire and rim, such that the diameter of each of said balls spans the hollow space. While the references fail to expressly define the rim as a "safety rim" (one piece rim with internal recesses that receive the edge of the tire), one of ordinary skill in the art at the time of the invention would have found it obvious to form the rim of the previously noted tire assemblies as a "safety rim" since such a construction has been extensively used over approximately the last 40 years and represents a safe and economical alternative to previous multi-piece tire constructions. Mitchell (Column 3, Lines 10-16) and Ross (Column 1, Lines 52-53) evidence the well-known and conventional use of "safety rims" in the manufacture of current vehicle tires. It is further noted that the tire assemblies of Krum, Peck, and Grubb are not limited to the multi-part rim constructions depicted in the respective figures; in fact, (i) Krum states that the rim "may be of any kind as is usual for the

Art Unit: 1733

particular class of casing used" (Lines 64-66), (ii) Peck states that "the tire casing may be attached to the wheel in any usual manner" (Lines 90-91), and (iii) Grubb states that the tire shoe "may be carried by a suitable rim of the quick detachable type or otherwise, of any approved style" (Lines 75-79). Thus, it is evident that the specific rim construction is not critical in the tire assemblies of Krum, Peck, and Grubb and as such, one of ordinary skill in the art at the time of the invention would have found it obvious to form the respective tire assemblies with a "safety rim" (one piece rim) for the well recognized economical and safety benefits noted above, it being emphasized that rim technology has significantly advanced since the early 1900's at which time the tire assemblies of Krum, Peck, and Grubb were conceived.

Regarding claim 2, Krum defines an air valve (c3), Peck defines an air valve (29), and Grubb describes a "usual valve" that is not depicted (Lines 95-100).

With respect to claims 6 and 12, as previously set forth in Paper Number 3, Page 6, one of ordinary skill in the art at the time of the invention would have found it obvious to inflate adjacent balls with different internal pressures as the respective balls would be expected to have somewhat different pressures.

Regarding claims 7 and 9, Peck describes the placement of an inflatable tube (10) within the tire cavity between said plurality of inflated balls and the rim. Krum and Grubb are not relied upon by the examiner in the rejection of claims 7 and 9.

Regarding claim 17, in describing the inflated balls, Krum (Column Lines 102-105), Peck (Lines 75-77), and Grubb (Lines 75-86) all suggest the use of a flexible or resilient material, such as rubber or the like. While none of these references provides

Art Unit: 1733

an express teaching for the use of polyurethane, one of ordinary skill in the art at the time of the invention would have found such a material selection to have been obvious since polyurethane, along with natural and synthetic rubbers, is extremely well known and extensively in the tire industry to form elastic bodies or components, as previously set forth in Paper Number 3, Paragraph 12. It is noted that Krum, Peck, and Grubb suggest that the critical aspect or characteristic of the material used for the inflated ball is flexibility or resiliency, wherein rubber is an exemplary embodiment that satisfies the desired characteristics. Also, while the claim recites the welding of polyurethane sheets, these limitations are "method limitations" and fail to further define the structure of the claimed invention, there being no evidence of such a method resulting in a materially different article (inflated ball).

With respect to claim 22, the tires of Peck and Grubb are not seen to contain components (within the tire cavity) that are more rigid than the inflated balls that span the space between the tire and rim.

4. Claims 3, 4, 8-11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krum, Peck, Grubb, Mitchell, and Ross as applied in Paragraph 2 and further in view of Richards (US 1,332,953, of record). In describing the plurality of balls, Krum, Peck, and Grubb suggest that the balls are inflated. However, in each instance, the references do not describe the specific inflation means and thus, the references necessarily fail to disclose that at least one ball contains a valve assembly. In any event, one of ordinary skill in the art at the time of the invention would have found it obvious to include a valve assembly as the inflation means in at least one ball since

this construction represents an extremely well known and extensively used means to control the pressure within a restricted region, such as a ball in tires. For example, Richards is directed to a similar tire construction having a plurality of inflated balls in which each ball contains a valve assembly to inflate the respective balls. As such, one of ordinary skill in the art at the time of the invention would have readily appreciated the inclusion of a valve assembly in each of the balls of Krum, Peck, and Grubb as detailed above.

Furthermore, regarding the use of polyurethane, Krum, Peck, and Grubb all suggest the use of a flexible or resilient material, such as rubber or the like. While none of these references provides an express teaching for the use of polyurethane, one of ordinary skill in the art at the time of the invention would have found such a material selection to have been obvious since polyurethane, along with natural and synthetic rubbers, is extremely well known and extensively in the tire industry to form elastic bodies or components, as previously set forth in Paper Number 3, Paragraph 12. It is noted that Krum, Peck, and Grubb suggest that the critical aspect or characteristic of the material used for the inflated ball is flexibility or resiliency, wherein rubber is an exemplary embodiment that satisfies the desired characteristics.

Regarding claim 9, the language "thin wall" fails to provide a quantitative relationship to adequately describe what constitutes a "thin wall" and a "thick wall". Applicant argued in Paper Number 4, Page 10 that a thin-walled ball relies upon the difference between the internal and external pressures of the ball while a thick-walled ball relies upon the stiffness of the material. However, this argument fails to provide a

quantitative distinction between a thin-walled and a thick-walled ball. It is noted that claims 15 and 16 contain language that adequately defines a "thin-walled" ball as having a wall thickness less than 3% of its diameter. As such, it is the examiner's position that Krum, Peck, and Grubb disclose the use of inflated balls having thin walls, as required by claim 9.

With specific respect to claim 10, while the claim recites the welding of polyurethane sheets, these limitations are "method limitations" and fail to further define the structure of the claimed invention, there being no evidence of such a method resulting in a materially different article (inflated ball).

Regarding claim 14, one of ordinary skill in the art at the time of the invention would have found it obvious to inflate adjacent balls with different internal pressures as the respective balls would be expected to have somewhat different pressures.

5. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krum, Peck, Grubb, Mitchell, Ross, and Richards as applied in Paragraph 3 and further in view of the Admitted Prior Art (Page 8, Lines 9-12)). While the prior art references are silent with respect to the inclusion of a rim lock, such a component represents a standard tire component that presses the tire edge portions against the recesses of the rim, thereby providing a secure attachment between the tire and the rim, as shown for example by the Admitted Prior Art (Page 8, Lines 9-12). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a rim lock in any of the tire assemblies described by Krum, Peck, or Grubb since it is desired to obtain a good attachment between the tire and the rim and a rim lock represents a

Art Unit: 1733

standard or well known means of obtaining this desired property in a variety of tire constructions. It is noted that applicant has further stated (Paper Number 4, Page 10) that rim locks are well known in the tire industry and has identified multiple catalog pages in which this component is described. Thus, it is clearly evident that a "rim lock" represents a standard/well known tire component and one of ordinary skill in the art at the time of the invention would have readily appreciated the use of such a well known tire component in a plurality of tire assemblies, including those described by Krum, Peck, and Grubb.

Allowable Subject Matter

6. Claims 15 and 18-21 are allowed. As previously set forth in the Final Rejection, there was no reference in the prior art search that disclosed, taught, or suggested a tire assembly comprising a tire and a safety rim (conventional one piece rim), wherein a plurality of inflated balls, each having a diameter that spans the space between the rim and the tire casing, are disposed within the tire cavity, such that each ball can support a load (in pounds) equal to or greater than one hundred times the cube of its diameter (in inches) without exceeding its tensile and elastic limit and each ball has a wall thickness less than 3 percent of its diameter. In particular, none of the prior art references of record disclosed the claimed relationships between the ball diameter, wall thickness, and load capabilities.

Response to Arguments

7. Applicant's arguments filed November 24, 2003 have been fully considered but they are not persuasive. First, applicant notes that of the three primary references used

Art Unit: 1733

in the rejection above, only Krum does not prevent the inflated balls from shifting circumferentially. However, while it is agreed that Peck and Grubb restrict the movement of the balls, this language constitutes new matter and the rejections involving Peck and Grubb remain applicable. As to Krum, applicant provides a declaration and asserts the following conclusions: it would be impossible to mount the tire of Krum on a safety rim (not enough space) and the Krum design would not be acceptable to consumers because it would provide a very rough ride.

Regarding the first issue, applicant's position that there is not enough space in the assembly of Krum to mount it on a safety rim is based on an erroneous assumption that the drawings of Krum are to scale. There is absolutely nothing in the figures of Krum that even remotely suggests that the tire constructions are depicted to represent working drawings. Additionally, as previously set forth, the rim construction defined by the claimed inventions is extremely broad and does not restrict the rim to a single construction. There are a large number of one-piece safety rims having a generally U-shaped cross section and while applicant might have been unable to mount the inventive tire on his particular safety rim when three obstructions are present (argued that this is similar to inflatable members of Krum), this does not suggest that such a tire cannot be mounted on any of the additional safety rim constructions. There are several additional factors, such as the type of tire and the depth of the rim well, that factor into the ability to mount a tire on a given rim. As such, there is no clear, conclusive, and supported evidence of record to indicate that the tire construction of Krum cannot be mounted on a one-piece, safety rim, which as indicated by applicant, represents the

most common rim construction in modern tire manufacturing. It is further emphasized that the rim assemblies used in the tire constructions of Krum, Peck, and Grubb are not described as being critical to the inventive concept- in fact, the references expressly state that the rim can be selected from any suitable assembly. In adapting this construction with modern tire technology, the one-piece safety rim definitely constitutes a suitable rim assembly.

As to the second issue, applicant is attacking the operability of Krum. As set forth in MPEP 716.07, every patent is presumed valid, including the operability of a patent. The issue of whether the tire would or would not provide a rough ride cannot be used to restrict the tire construction to that expressly disclosed by Krum- this logic suggests that no additional modifications or improvements to Krum would ever be made.

Regarding the figure between Paragraph 16 and 17 in the declaration, these results do not provide a conclusive showing of unexpected results because they are a comparison between the inventive tire and tubeless and tubed tires- the prior art references actually teach the inventive concept of arranging a plurality of inflated balls within a tire cavity. In order to have unexpected results, applicant would have to demonstrate that the combination of the inventive tire construction and the specific rim of the claimed invention, not a general one-piece safety rim having a U-shaped cross section, provided the purported benefits and such benefits are not attainable from additional rim constructions (i.e. inventive tire is only mountable on specific rim construction).

With respect to the long-felt need issue raised by applicant on Page 14, applicant correctly states that tremendous amounts of resources have been spent in search of a solution for the problem of punctured tires and blow-outs over the last hundred years. In fact, a large number of tires have been constructed in the last 10 years or so that have drastically improved the operation of tires in a punctured or underinflated state. For example, tires having sidewall runflat inserts, anti-puncture devices in the tread region, and runflat devices within the tire cavity have all found great success in improving tire operability in a punctured or underinflated state. Thus, the "long-felt" need has been satisfied by another before the invention by applicant.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Art Unit: 1733

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Justin Fischer

April 7, 2004



SAM CHUAN YAO
PRIMARY EXAMINER